

Aficio® G700 & G500

THE RICOH AFICIO G700 & G500
HYBRID COLOR PRINTER

Competitive Analysis



Ricoh Aficio G700 & G500
Entry-level Color Printers for Business

featuring

RICOH®

GetSprinter™

technology

the fast, affordable printing innovation for business color users

AFICIO G700 & G500

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COMPETITIVE ANALYSIS

The G700 and G500 represent a new class of color printer from Ricoh. In fact, GelSprinter technology is so new that it falls into a small but growing product category called *Business Inkjet*. Currently only Hewlett-Packard and Canon offer color inkjet models that can be classified as Business Inkjet (BU) printers, and Canon's latest models are not yet available here in the United States. But with the success HP is experiencing with them here and Canon's positive results from abroad, industry analysts like IDC expect this new breed of inkjet to take significant market share away from conventional personal/home inkjet printers as well as low-end color laser beam printers.

Business Inkjet printers like the G700 and G500 are hybrids; they take the best characteristics of typical inkjet printers and combine them with the advantages of color laser technology. From the inkjet side of the family, Business Inkjet printers inherit **individual liquid ink cartridges, a low hardware acquisition price, low power consumption with fast warm-up times, a small footprint, and simple end-user maintenance tasks**. From the color laser side, Business Inkjet printers are heir to **faster speeds, greater paper capacities, higher duty cycles, low cost-per-page factors, high-resolution plain paper printing, duplexing, and Ethernet 100Base-TX/10Base-TX network connectivity**.

The G700 & G500 Business Inkjet printers overcome the shortcomings of typical inkjet models by:

- **Eliminating expensive cartridges** that require the print head be replaced each time an ink color is depleted. Users only replace inks as needed, not print heads.
- **Printing on plain paper** instead of special, more expensive stocks to maximize image quality.
- **Enabling duplex printing** at the small workgroup/SOHO level. Dye-based inks simply do not dry fast enough to permit duplexing.
- **Offering higher capacity paper supplies** to meet rising volumes in business environments instead of 50-sheet vertical paper feed trays that require constant attention and replenishing.
- **Allowing multiple users to share access** to the printer through optional network connectivity. Typical inkjet printers usually support only local interfaces for peer-to-peer printing.
- **Supporting volumes in the thousands of pages per month** as opposed to the hundreds of pages per month common to office superstore models.
- **Producing full-color output at speeds equal to monochrome**, and at many times the overall output speed of older conventional inkjet printers.

The G700/G500 Business Inkjet printers overcome the shortcomings of desktop color laser models by:

- **Speeding document production by eliminating the need for fusing**, and the warm-up times and excessive power consumption that accompanies the need for high temperatures.
- **Putting full-color printing within easy reach of the small business owner**. GelSprinter technology is **hundreds if not thousands of dollars less** than comparable color laser beam printers.
- **Reducing the cost of color** through the use of Ricoh's innovative Level Color Mode to provide full-color prints at a cost equal to that of monochrome pages.

AFICIO G700 & G500

How do the G700 and G500 do it? The credit goes primarily to three core technologies:

- These printers use new formula of **Viscous Inks** that begin to dry immediately upon contact with the air. This limits dot spreading and prevents ink bleed-through. Viscous inks resist smudging, will not dissolve upon accidental contact with water, and resist fading when exposed to sunlight. As a result, the G700/G500 are capable of delivering high-resolution two-sided prints at fast speeds on plain paper without smearing the first side when the duplex rollers invert each page.
- **Extra wide print heads** that enable the G700/G500 to print multiple lines per pass across each page, increasing speeds, reducing wear and tear, and supporting true business volumes.
- Complete support for every sheet of paper as it travels through the paper path resting on a **Belt Transfer System**. This ensures proper registration, maintains a uniform distance between paper and print heads, and minimizes paper jams.

In truth, there aren't many other Business Inkjet printers to compete against—the category is simply too new. The following pages will review how Ricoh's new printers stack up against the leading BJI models from HP, as well as a representative of color laser and typical inkjet printers. Please note that speed and CPP can vary greatly with inkjet printers as a function of the selected print mode/resolution, image patterns, and page coverage.

Note: This information has been compiled from several sources including BLI Specification Guides, product brochures, and data gathered from manufacturer Websites. Some discrepancies were found. This document represents a compilation of these sources to the best of Ricoh's ability. Please test any performance claims against a specific competitor using identical file/job parameters to gauge true performance in the customer environment before making any claims of superiority.

Hewlett-Packard Business Inkjet 1200 Printer Series



The recently introduced BJ 1200 family replaces HP's initial Business Inkjet offering, the BJ 1100 Series. Recognizing the potential for a low cost "business class" inkjet solution, HP was quick to update the 1100 Series with a more powerful controller, increased RAM, and faster speeds while maintaining the same \$199 SRP for the non-networked basic version with standard

duplexing. This printer is also available in *dn*, *dtm*, and *dtwn* configurations:

1200d	\$199	Non-networked, Standard Duplex
1200dn	\$249	Networked (wired)
1200dtm	\$299	Networked (wired)+ 250-sheet Paper Tray 2
1200dtwn	\$349	Networked (wired + wireless) + 250-sheet Paper Tray 2

Like these models, the HP BJ 1200 is based on separate print cartridge and print head design. On paper the HP Business Inkjet 1200 Series has several specification advantages over the G500, as shown in the chart. These include:



- Lower SRP
- Faster Full-color and Black-and-white output speeds with higher interpolated resolution
- Higher maximum monthly volume rating with higher print cartridge yields
- Greater amounts of RAM and a faster CPU with optional hard-wired or wireless connectivity
- Printing onto banner paper up to 19 feet long
- Support for Macintosh computers
- Standard duplexing (up to 8.5" x 11", equal to maximum duplex size)

The G500 has some specification advantages of its own, including a larger standard paper supply and the availability of a single sheet bypass to process heavyweight stocks. But that's not where the battle will be won.

The BJ 1200 Series uses pigment-based ink for black, but dye-based inks for the cyan, magenta, and yellow colors. The price of each print cartridge on the HP website is \$33.99—comparable to the print cartridge pricing at \$32 for Black, \$31 for Cyan, and \$36 for Magenta and Yellow (although yields are not equivalent). However, these print heads are designed to last for the life of the printer and never need replacement. HP publishes a life of 16,000 pages for the Black print head, and 24,000 pages for each of C/M/Y print head. Replacement print heads for the BJ 1200 are also available through the HP website at \$33.99 each, which means the customer will incur much higher out-of-pocket expenses for HP technology over the life of the printer.

As reviewed in the Sales Information Guide, dye-based inks are prone to smudging and bleeding, take longer to dry, and are therefore not recommended for two-sided printing applications. The printers' Viscous Inks are fast drying and specifically designed to meet business user needs for duplexing at high speed. The use of dye-based inks calls into question the full-color duplex print quality on the BJ 1200 Series. Also, ask your customer to closely examine high image coverage prints. Is the paper wavy from ink over-saturation? Does ink bleed through to the rear side of the paper? Is registration accurate? When selling against the HP BJ 1200 Series, it will hard to compete on price, especially against the *d* and *dtm* models—you'll have to attack image quality and the high cost of consumables.

AFICIO G700 & G500

Feature/Specification	Ricoh Aficio G500	HP Business Inkjet 1200
		
Suggested Retail Price	\$329	\$199
Fastest Print Speeds	19-ppm (FC) / 19-ppm (B&W)	24-ppm (FC) / 28-ppm (B&W)
Printer Technology	Piezo Inkjet	Thermal Inkjet
Warm-up Time	30 seconds or less	INA
First Print Time B&W/Full-color	7.5 seconds / 10 seconds	INA / 7.4 seconds
Monthly Volume (Max.)	Up to 5,000 prints	Up to 6,250 prints
Controller Type / Speed	TM4955 AFG @ 200MHz	Motorola ColdFire 4e @ 240MHz
Std./Max. Memory (RAM)	8MB / 8MB	32MB / 32MB
Standard Interfaces	USB 1.1/2.0	USB 2.0, IEEE 1284 Parallel
Optional Interfaces	Ethernet 100Base-TX/10Base-TX via external print server	Network connectivity via external HP JetDirect print servers
Resolution (dpi) Unenhanced/Minimal: Enhanced/Maximum:	1,200 x 1,200-dpi 3,600 x 1,200-dpi equivalent	1,200 x 1,200-dpi 4,800 x 1,200-dpi equivalent
Print Drivers & PDL Support	RPCS	PCL 3
Operating System Support	Windows® 95/98/Me/ NT4.0/2000/XP/Server 2003	Windows® 98/Me/NT4.0/2000/XP Mac OS 9.1x, OS X v 10.1.5
Maximum Print Size	8.5" x 14"	8.5" x 14"
Standard Paper Supply	200 x 1	150 x 1
Optional Paper Supply	Single Sheet Bypass	250 x 1
Automatic Duplex Printing	Optional, up to 8.5" x 11"	Standard, up to 8.5" x 11"
Max. Acceptable Paper Weights Paper Tray(s): Bypass:	16 - 28 lb. Bond (60 - 105 gm²) 16 - 43 lb. Bond/90 lb. Index (60 - 163 gm²)	16 - 36 lb. Bond N/A
Document Output	150 sheets	150 sheets
Number of Inks	4, Cyan/Magenta/Yellow/Black	4, Cyan/Magenta/Yellow/Black
Ink Type	CMYK: Pigment-based	CMY: Dye-based K: Pigment-based
Print Head Size	2 Lines, 1.27"	INA
Yield Per Cartridge (@ 5% coverage)	Cyan: 1,000 prints Magenta: 1,150 prints Yellow: 1,150 prints Black: 1,450 prints	Cyan: 1,750 prints Magenta: 1,750 prints Yellow: 1,750 prints Black: 1,750 prints
Cost-per-page (@ 5% coverage) Black-and-white: Full-color:	\$0.0221 \$0.1157	\$0.0220 \$0.0840
Dimensions (W x D x H)	15.87" x 17.32" x 8.58"	19.92" x 18.26" x 8.31"
Weight (Base Unit)	22 lb.	20.7 lb.
Power Consumption	Less than 30W	75W max.

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Hewlett-Packard Business Inkjet 2300 Printer Series



The HP Business Inkjet 2300 Series is being compared to the G700 due to their equal maximum volume rating of 10,000 prints per month and price. As is common with HP products, the non-networked 2300 priced at \$499 is also available in multiple higher priced configurations. That means when competing against the HP BUI 2300 Series, you can begin to focus not just on image quality, but on price:

2300	\$499	Non-networked
2300n	\$799	Networked (wired)
2300dtn	\$899	Networked (wired)+ 500-sheet Paper Tray 2 + Duplexing
Duplex module	\$99	May be added to 2300 and 2300n configurations

A non-networked BUI 2300 with optional duplexing costs \$598. It offers more RAM, a two-way 400-sheet paper supply, a Parallel port for connection to older PCs, PCL and PostScript emulation to support Windows, Macintosh, and UNIX workstations, and a 256MHz CPU.

But for \$449 you can offer a business inkjet solution with similar speeds, equal volume ratings, USB 2.0 connectivity, and standard duplexing with a built-in single sheet bypass.



The HP BUI 2300 Series also uses inks priced identical to the 1200 Series—\$33.99 per ink cartridge. In this situation, the G700 can use either the regular yield or high yield ink cartridges, the latter offering a lower black-and-white CPP and requiring less maintenance.

Plus, while the base model of the 2300 Series is already more expensive than the duplex-enabled G700, it will also cost users \$136 plus tax and shipping to replace print heads every 16k/24k, while these print heads are permanent, further contributing to the system's low overall running cost.

If your customer requires support for Macintosh you will need to find another solution. UNIX is so rare at this level of the market that very few will have need for that compatibility. But when the customer's environment is purely Windows—and that should be the vast majority of situations in small work-group/SOHO environments—your solution with RPCS will provide simple control with complete access to features like duplexing, color balance, zoom, margins, collating, and more.

Like the 1200 Series, the 2300 Series uses pigment-based ink for black, but dye-based inks for the cyan, magenta, and yellow colors. And like the 1200 Series, the same questions regarding image quality for two-sided prints arise. Just because an inkjet printer is fast doesn't mean that it is better suited for everyday business color printing applications, especially duplexing. Additionally, remember to highlight the printers' Level Color mode, which produces full-color prints and dark text at a cost-per-page factor closer to black-and-white CPPs.

AFICIO G700 & G500

Feature/Specification	Ricoh Aficio G700	HP Business Inkjet 2300
		
Suggested Retail Price	\$449	\$499
Fastest Print Speeds	20-ppm (FC) / 20-ppm (B&W)	22-ppm (FC) / 26-ppm (B&W)
Printer Technology	Piezo Inkjet	Thermal Inkjet
Warm-up Time	30 seconds or less	INA
First Print Time B&W/Full-color	6 seconds / 9 seconds	INA / 7.4 seconds
Monthly Volume (Max.)	Up to 10,000 prints	Up to 10,000 prints
Controller Type / Speed	TM4955 AFG @ 200MHz	Motorola CPU @ 256MHz
Std./Max. Memory (RAM)	16MB / 16MB	64MB / 320MB
Standard Interfaces	USB 1.1/2.0	USB 2.0, IEEE 1284 Parallel, 1 open EIO slot
Optional Interfaces	Ethernet 100Base-TX/10Base-TX via external print server	Network connectivity via external HP JetDirect print servers
Resolution (dpi)		
Unenhanced/Minimal:	1,200 x 1,200-dpi	1,200 x 1,200-dpi
Enhanced/Maximum:	3,600 x 1,200-dpi equivalent	4,800 x 1,200-dpi equivalent
Print Drivers & PDL Support	RPCS	PCL 6, PCL 5c, PS3 emulation
Operating System Support	Windows® 95/98/Me/NT4.0/2000/XP/Server 2003	Windows® 95/98/Me/NT4.0/2000/XP Mac OS 9.1x, OS X v 10.1.5, UNIX
Maximum Print Size	8.5" x 14"	8.5" x 14"
Standard Paper Supply	200 x 1 + 1 Bypass	150 x 1 + 250 x 1
Optional Paper Supply	500-sheet Paper Tray	N/A (500 x 1 available on dtn)
Automatic Duplex Printing	Standard, up to 8.5" x 11"	Optional
Max. Acceptable Paper Weights		
Paper Tray(s):	16 - 28 lb. Bond (60 - 105 gm²)	16 lb. Bond - 110 lb. Index
Bypass:	16 - 43 lb. Bond/90 lb. Index (60 - 163 gm²)	N/A
Document Output	150 sheets	100 sheets
Number of Inks	4, Cyan/Magenta/Yellow/Black	4, Cyan/Magenta/Yellow/Black
Ink Type	CMYK: Pigment-based	CMY: Dye-based K: Pigment-based
Print Head Size	2 Lines, 1.27"	INA
Yield Per Cartridge (High Yield) (@ 5% coverage)	Cyan: 2,000 prints Magenta: 2,300 prints Yellow: 2,300 prints Black: 2,900 prints	Cyan: 1,750 prints Magenta: 1,750 prints Yellow: 1,750 prints Black: 1,750 prints
Cost-per-page (@ 5% coverage)		
Black-and-white:	\$0.0197	\$0.0220
Full-color:	\$0.0951	\$0.0840
Dimensions (W x D x H)	19.29" x 18.47" x 8.58"	21.8" x 16.4" x 11.4"
Weight (Base Unit)	24 lb.	29.7 lb.
Power Consumption	Less than 35W	67W max.

Hewlett-Packard Business Inkjet 3000 Printer Series



The 3000 Series is HP's top of the line printer for its 8.5" x 14" Business Inkjet solutions. Featuring a dual processor design (160MHz and 400MHz CPUs), 88MB RAM standard (expandable to 344MB), a maximum 1,100-sheet paper capacity, and high yield ink cartridges, the BIJ 3000 Series is rated for use in environments producing up to 30,000 pages per month—three times that of the G700.

3000	\$599	Non-networked
3000n	\$899	Networked (wired)
3000dtn	\$1,099	Networked (wired) + 700-sheet Paper Tray 2 + Duplexing
Duplex module	\$149	May be added to 3000 and 3000n configurations

If a business were truly averaging those kinds of volumes, an entry-level color laser unit like the CL1000N would better serve them, especially if the customer is considering investing roughly \$1,000 in printing technology.



Having said that, we acknowledge that the BIJ 3000 Series offers acceptable speeds, serves Macintosh and UNIX as well as Windows clients, and offers an optional 700-sheet paper tray (standard on *dtn*), a 100-sheet multipurpose tray, and multiple networking options including wireless connectivity.

An apples-to-apples comparison would have the duplex-enabled G700 with permanent print heads priced at \$449; whereas a duplex-enabled BIJ 3000 carries a \$748 price tag (the Duplex Unit for the 3000 Series is \$149). For the incremental \$299 the customer gets a Macintosh-compatible printer operating at 18/21-ppm printer with 72MB more RAM, a Parallel interface, and dual processors. For the typical small workgroup/SOHO customer this seems like overkill. The G700 represents a more *rightsized*, affordable solution for these cost-conscious customers.

Further, the high capacity ink cartridges available for use with the BIJ 3000 Series are \$65.99 each Color and \$33.99 for Black (that's \$232 for a set of four ink cartridges), higher than the \$57-Black/\$50-Cyan/\$58-Magenta & Yellow SRP of High Yield cartridges (although the yield is not equivalent). And as with other Business Inkjet models from HP, the BIJ 3000 Series uses dye-based ink for cyan, magenta, and yellow colors. With respect to print head replacement, the 3000 Series does offer longer life print heads (45,000 for Black and 105,000 for C/M/Y) but they still require eventual replacement at \$70.99 each versus the permanent print heads in the G700. That means if the user ran the HP 3000 at half its maximum rated monthly volume (15,000 prints per month) the customer would have to replace the Black print head every three months, and each C/M/Y color print head about twice a year. That equates to a total of 10 print heads per year at \$70.99 each for an annual consumable cost of \$709—in addition to inks!!

When competing against the HP Business Inkjet 3000 Series with the G700, be sure to play the price card for both hardware and supplies, and question the potential for high quality duplex prints from a device that uses dye-based inks for color images.

AFICIO G700 & G500

Feature/Specification	Ricoh Aficio G700	HP Business Inkjet 3000
		
Suggested Retail Price	\$449	\$599
Fastest Print Speeds	20-ppm (FC) / 20-ppm (B&W)	18-ppm (FC) / 21-ppm (B&W)
Printer Technology	Piezo Inkjet	Thermal Inkjet
Warm-up Time	30 seconds or less	INA
First Print Time B&W/Full-color	6 seconds / 9 seconds	INA / 7.4 seconds
Monthly Volume (Max.)	Up to 10,000 prints	Up to 30,000 prints
Controller Type / Speed	TM4955 AFG @ 200MHz	Dual CPUs: 160MHz & 400MHz
Std./Max. Memory (RAM)	16MB / 16MB	88MB / 344MB
Standard Interfaces	USB 1.1/2.0	USB 2.0, IEEE 1284 Parallel, 2 open EIO slots
Optional Interfaces	Ethernet 100Base-TX/10Base-TX via external print server	Network connectivity via external HP JetDirect print servers
Resolution (dpi) Unenhanced/Minimal: Enhanced/Maximum:	1,200 x 1,200-dpi 3,600 x 1,200-dpi equivalent	600 x 600-dpi 2,400 x 1,200-dpi equivalent
Print Drivers & PDL Support	RPCS	PCL 6, PCL 5c, PS3 emulation
Operating System Support	Windows® 95/98/Me/NT4.0/ 2000/XP/Server 2003	Windows® 95/98/Me/NT4.0/ 2000/XP Mac OS 8.6+, OS X v 10.1.5, UNIX
Maximum Print Size	8.5" x 14"	8.5" x 14"
Standard Paper Supply	200 x 1 + 1 Bypass	300 x 1
Optional Paper Supply	500-sheet Paper Tray	700 x 1 + 100 Bypass
Automatic Duplex Printing	Standard, up to 8.5" x 11"	Optional
Max. Acceptable Paper Weights Paper Tray(s): Bypass:	16 - 28 lb. Bond (60 - 105 gm²) 16 - 43 lb. Bond/90 lb. Index (60 - 163 gm²)	16 lb. Bond - 110 lb. Index 16 lb. Bond - 110 lb. Index
Document Output	150 sheets	300 sheets
Number of Inks	4, Cyan/Magenta/Yellow/Black	4, Cyan/Magenta/Yellow/Black
Ink Type	CMYK: Pigment-based	CMY: Dye-based K: Pigment-based
Print Head Size	2 Lines, 1.27"	0.83"
Yield Per Cartridge (High Yield) (@ 5% coverage)	Cyan: 2,000 prints Magenta: 2,300 prints Yellow: 2,300 prints Black: 2,900 prints	Cyan: 3,300 prints Magenta: 3,300 prints Yellow: 3,300 prints Black: 3,300 prints
Cost-per-page (@ 5% coverage) Black-and-white: Full-color:	\$0.0197 \$0.0951	\$0.0190 \$0.0790
Dimensions (W x D x H)	19.29" x 18.47" x 8.58"	23.3" x 25.2" x 14"
Weight (Base Unit)	24 lb.	61 lb.
Power Consumption	Less than 35W	700W

Hewlett-Packard Color LaserJet 2550 Printer Series



The HP Color LaserJet 2550 Series is included in this review as it is representative of the entry-level 8.5" x 14" color laser models you will compete against. The base HP CLJ 2550L has a SRP of \$499 and is available in multiple configurations:

2550	\$599	Non-networked
2550Ln	\$899	Networked (wired)
2550n	\$1,099	Networked (wired) + 700-sheet Paper Tray 2 + Duplexing

At first glance it looks like an easy decision: Spend \$50 more than a G700 and get laser output quality, right? The HP CLJ 2550 Series offers some impressive specifications, like a 30,000-page monthly volume, large standard/maximum RAM capacities, PCL and PostScript 3 emulation, connectivity to Macintosh, and "Instant On" technology for near zero warm-up times. Let's look a little closer.

For \$50 more than a G700 (more if the customer is considering the *Ln* or *n* versions), the customer gets:

- 4-ppm color output speed versus full-color output speeds up to 20-ppm on the G700.
- First print times three times longer than the G700.
- True 600 x 600-dpi resolution versus 1200-dpi on the G700
- 125-sheet standard paper supply. This may be upgraded to a maximum of 875 sheets, but there is no Bypass available for the productive printing onto special stocks, envelopes, etc.
- No duplex printing capabilities which come standard on the G700.
- A stock weight limit of 47 lb. Bond versus 90 lb. Index on the G700.
- A printer that is the same size, but twice the weight, and consumes 10 times the energy as the G700.



Now let's compare technology differences and their effect on cost. The CLJ 2550 uses a single drum design with an internal carousel into which four separate toner cartridges are inserted. This accounts for the drop-off in speed when producing color pages. But what about cost?

HP CLJ 2550 CPP and expense factors (consumables only):

Consumable	Yield	Price	CPP	Total CPP
Black Toner	5,000 pages	\$83	\$0.0166	\$0.0252
Black Drum Yield	20,000 pages	\$173	\$0.0086	
CMY Toners	4,000 pages ea.	\$99 each	$0.0247 \times 3 = \$0.0742$	\$0.1088
CMY Drum Yield	5,000 pages	\$173	\$0.0346	

Not only are the CPP factors for the HP CLJ 2550 higher than for Ricoh solutions, but after every 4,000 color prints the customer must spend \$297 to replace three color toner units, and then another \$83 for the Black cartridge shortly thereafter. Plus, the drum must be replaced after every 20,000 monochrome prints or 5,000 full-color pages at a cost of \$173. So after every 5,000 full color pages produced (that's just 1/6 the maximum monthly volume rating), the customer must spend another \$553 to keep their non-duplex capable CLJ 2550 Series machine running in top condition. For that, they could buy another G700 and a full set of supplies!

AFICIO G700 & G500

Feature/Specification	Ricoh Aficio G700	HP Color LaserJet 2550
		
Suggested Retail Price	\$449	\$499
Fastest Print Speeds	20-ppm (FC) / 20-ppm (B&W)	4-ppm (FC) / 20-ppm (B&W)
Printer Technology	Piezo Inkjet	Laser
Warm-up Time	30 seconds or less	Instant On technology
First Print Time B&W/Full-color	6 seconds / 9 seconds	18 seconds / 29 seconds
Monthly Volume (Max.)	Up to 10,000 prints	Up to 30,000 prints
Controller Type / Speed	TM4955 AFG @ 200MHz	Motorola CFV4e @ 264MHz
Std./Max. Memory (RAM)	16MB / 16MB	64MB / 192MB
Standard Interfaces	USB 1.1/2.0	USB 2.0, IEEE 1284 Parallel
Optional Interfaces	Ethernet 100Base-TX/10Base-TX via external print server	Network connectivity via external HP JetDirect print servers
Resolution (dpi) Unenhanced/Minimal: Enhanced/Maximum:	1,200 x 1,200-dpi 3,600 x 1,200-dpi equivalent	600 x 600-dpi ImageREt2400
Print Drivers & PDL Support	RPCS	PCL 6, PS3 emulation
Operating System Support	Windows® 95/98/Me/ NT4.0/ 2000/XP/Server 2003	Windows® 98/Me/NT4.0/2000/XP Mac OS 9.1+, OS X, UNIX
Maximum Print Size	8.5" x 14"	8.5" x 14"
Standard Paper Supply	200 x 1 + 1 Bypass	125 x 1
Optional Paper Supply	500-sheet Paper Tray	250 x 1 + 500 x 1
Automatic Duplex Printing	Standard, up to 8.5" x 11"	None
Max. Acceptable Paper Weights Paper Tray(s): Bypass:	16 - 28 lb. Bond (60 - 105 gm ²) 16 - 43 lb. Bond/90 lb. Index (60 - 163 gm ²)	16 lb. - 47 lb. Bond N/A
Document Output	150 sheets	125 sheets
Number of Inks	4, Cyan/Magenta/Yellow/Black	4, Cyan/Magenta/Yellow/Black
Ink Type	CMYK: Pigment-based	N/A, Uses dry toner cartridges
Print Head Size	2 Lines, 1.27"	N/A
Yield Per Cartridge (High Yield) (@ 5% coverage)	Cyan: 2,000 prints Magenta: 2,300 prints Yellow: 2,300 prints Black: 2,900 prints	Cyan: 4,000 prints Magenta: 4,000 prints Yellow: 4,000 prints Black: 5,000 prints
Cost-per-page (@ 5% coverage) Black-and-white: Full-color:	\$0.0197 \$0.0951	\$0.0252 \$0.1088
Dimensions (W x D x H)	19.29" x 18.47" x 8.58"	18.9" x 17.7" x 12.8"
Weight (Base Unit)	24 lb.	45.7 lb.
Power Consumption	Less than 35W	368W

Hewlett Packard Deskjet 3845



The HP Deskjet 3845 is included in this review because it is representative of conventional inkjet printers found in SOHO and personal environments.

At \$69.99 the Deskjet 3845 is certainly affordable and provides acceptable output speeds. It offers USB 2.0 connectivity and is rated for volumes up to 1,000 pages per month. At this level of the market (read: consumer)

specifications like controller type and first print speeds are of minimal importance—all the customer wants to do is plug in the cables, load the driver on the connected Windows or Mac computer, and begin printing. The standard 100-sheet paper supply is sufficient, networking is not required, duplexing is not supported, and the high monthly print volume is not necessary. This class of printer is best suited for home and photo printing.

The best way to illustrate the difference between Business Inkjet and Personal Inkjet is by examining print cartridge type and yields:



Each print cartridge measures yields in the thousands of pages; the Deskjet 3845 uses a tri-color print cartridge that delivers 190 full-color prints at 5% image coverage per color for \$21.99, (15% image coverage total) and a Black cartridge for \$17.99 that yields 220 prints at 5% image coverage.

Those prices put the Black CPP factor at over 8¢ per page, the 3-color CMY CPP at almost 12¢ per page, and four-color printing at 20¢ per page—many times that of CPP factors. Further, these cartridges would have to be replaced once per week if the Deskjet 3845 were being pushed to the limits of its volume capacity. Clearly, the Deskjet class of inkjet printer is not meant to support true business printing applications.

Even at more reasonable volumes of 200 pages per month, the customer would have to buy a new set of print cartridges for \$40 each month. After one year they would spend more on consumables than the cost of a new G700 that supports higher volumes, faster speeds, greater yields, larger paper supplies, network connectivity, and duplexing. If your customer is considering going the cheap route, do the math and show them the big picture costs of supporting personal inkjet technology.

The Deskjet 3845 also has the ability to accept a third Photo Ink cartridge that retails for \$24.99 on the HP website to boost image quality when printing photographs onto special glossy paper stocks. These costs were not included in CPP calculations.

AFICIO G700 & G500

Feature/Specification	Ricoh Aficio G500	HP Deskjet 3845
		
Suggested Retail Price	\$329	\$69.99
Fastest Print Speeds	19-ppm (FC) / 19-ppm (B&W)	14-ppm (FC) / 18-ppm (B&W)
Printer Technology	Piezo Inkjet	Thermal Inkjet
Warm-up Time	30 seconds or less	INA
First Print Time B&W/Full-color	7.5 seconds / 10 seconds	INA / INA
Monthly Volume (Max.)	Up to 5,000 prints	Up to 1,000 pages
Controller Type / Speed	TM4955 AFG @ 200MHz	INA
Std./Max. Memory (RAM)	8MB / 8MB	Integrated memory
Standard Interfaces	USB 1.1/2.0	USB 2.0
Optional Interfaces	Ethernet 100Base-TX/10Base-TX via external print server	None
Resolution (dpi) Unenhanced/Minimal: Enhanced/Maximum:	1,200 x 1,200-dpi 3,600 x 1,200-dpi equivalent	1,200 x 1,200-dpi 4,800 x 1,200-dpi equivalent
Print Drivers & PDL Support	RPCS	Host-based
Operating System Support	Windows® 95/98/Me/ NT4.0/ 2000/XP/Server 2003	Windows® 98/Me//2000/XP Mac OS 9.1+, Mac OS X 10.1.5+
Maximum Print Size	8.5" x 14"	8.5" x 14"
Standard Paper Supply	200 x 1	100 x 1
Optional Paper Supply	Single Sheet Bypass	N/A
Automatic Duplex Printing	Optional, up to 8.5" x 11"	None
Max. Acceptable Paper Weights Paper Tray(s): Bypass:	16 - 28 lb. Bond (60 - 105 gm²) 16 - 43 lb. Bond/90 lb. Index (60 - 163 gm²)	16 lb. - 24 lb. Bond N/A
Document Output	150 sheets	50 sheets
Number of Inks	4, Cyan/Magenta/Yellow/Black	6, Cyan/Magenta/Yellow/Black + 2 Photo Inks
Ink Type	CMYK: Pigment-based	CMY: Dye-based K: Pigment-based
Print Head Size	2 Lines, 1.27"	1 Line, 0.33"
Yield Per Cartridge (@ 5% coverage)	Cyan: 1,000 prints Magenta: 1,150 prints Yellow: 1,150 prints Black: 1,450 prints	Cyan: 190 prints Magenta: 190 prints Yellow: 190 prints Black: 220 prints
Cost-per-page (@ 5% coverage) Black-and-white: Full-color:	\$0.0221 \$0.1157	\$0.0818 \$0.1975
Dimensions (W x D x H)	15.87" x 17.32" x 8.58"	17" x 16.3" x 5.6"
Weight (Base Unit)	22 lb.	5 lb.
Power Consumption	Less than 30W	25W